What is claimed is:

A method for testing with a torpedo and a countermeasure.
threat emulation system, comprising:

selectively programming said countermeasure threat emulation system for producing at least one of a plurality of foreign countermeasures using a database of foreign countermeasures; and

launching said torpedo for interactive operation with said countermeasure threat emulation system.

- 2. The method of claim 1 further comprising analyzing sounds produced by said torpedo with a neural network within said countermeasure threat emulation system.
- 3. The method of claim 2 further comprising providing an identification of said torpedo using said neural network.
- 4. The method of claim 3 further comprising responding to said torpedo based on said identification.

- 5. The method of claim 4 wherein said responding further comprises choosing and producing one of said plurality of foreign countermeasures corresponding to said identification.
- 6. The method of claim 1 further comprising operating said countermeasure threat emulation system in duplex mode by simultaneously sending and receiving acoustic signals.
- 7. The method of claim 1 further comprising using a digital signal processing unit within said countermeasure threat emulation system for selectively producing a wideband acoustic signal or a band limited acoustic signal.
- 8. A programmable countermeasure threat emulation system, comprising:
 - a tubular housing suitable for launching from a submarine;
 - a power supply within said tubular housing, said power supply including controls for selectively operating remotely or connected to an external power source;

- a hovering system for said tubular housing for controlling mobility of said tubular housing within water;
- a transmitter for transmitting acoustic signals;
- a digital signal processing unit for producing waveforms to be transmitted by said transmitter; and
- a central processing unit for storing digital information related one or more countermeasure threats and supplying said digital information to said digital signal processing unit.
- 9. The system of claim 8 further comprising a receiver hydrophone.
- 10. The system of claim 9 further comprising a neural network analyzing signals from said receiver hydrophone.
- 11. The system of claim 8 further comprising a plurality of field programmable gate arrays for said digital signal processing unit.

- 12. The system of claim 8 further comprising a plurality of digital signal processing integrated circuits for said digital signal processing unit.
- 13. The system of claim 12 further comprising a signal conditioner operable for converting a stream of digital signals into analog signal for broadcast by said transmitter.
- 14. The system of claim 8 further comprising a database stored in a computer external to said housing, said database containing a plurality of foreign countermeasure threats.
- 15. A method for emulating a countermeasure threat, said method comprising:

downloading data for at least one of said plurality of foreign countermeasure threats into a computer within a housing;

launching said housing for underwater operation; and

of foreign countermeasure threats into water through an acoustic transducer.

- 16. The method of claim 15 further comprising processing said data utilizing one or more digital signal processing integrated circuits.
- 17. The method of claim 16 further comprising providing a plurality of field programmable gate arrays for reprogramming said digital signal processing circuits.
- 18. The method of claim 15 further comprising utilizing a receiver hydrophone in said countermeasure threat emulator for receiving acoustic signals produced by an incoming torpedo.
- 19. The method of claim 18 further comprising identifying said incoming torpedo from said received acoustic signals.

- 20. The method of claim 19 further comprising utilizing a neural network within said countermeasure threat emulator for said identifying.
- 21. The method of claim 19 further comprising responding to said incoming threat based on said identification and a preprogrammed response for said identification.
- 22. The method of claim 21 further comprising simultaneously broadcasting acoustic signals and receiving acoustic signals.